

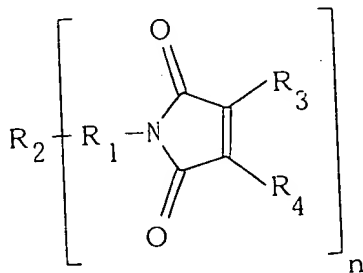
IN THE CLAIMS

Please cancel claim 1 without prejudice or disclaimer.

Please amend claims 2-10 as follows:

1. (Canceled).

2. (Currently Amended): ~~The A material for a photo-alignment layer according to claim 1,~~
the material comprising a polymerizable monomer, the polymerizable monomer having at least one
photo-alignment moiety which causes photo-alignment by a photo dimerization reaction, and having
at least two polymerizable maleimide groups in a polymerizable monomer, wherein the
polymerizable monomer having a maleimide group is a compound represented by the general
formula:



wherein:

R₁ represents:

an alkylene group having 1 to 30 carbon atoms, a cycloalkylene group having 3 to 12 carbon atoms,
~~or a group 2 to 5 molecular groups in which these 2 to 5 groups selected from the group of alkylene~~
groups having 1 to 30 carbon atoms and cycloalkylene groups having 3 to 12 carbon atoms, the 2 to
5 molecular groups joined are combined via a single bond, an ester bond, an ether bond or a urethane
bond;

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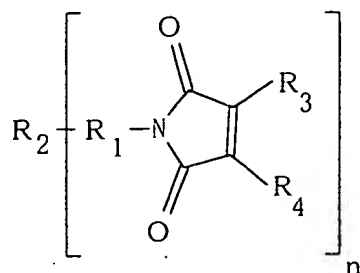
R₂ represents a photo-alignment moiety selected from the group consisting of a benzophenone group, cinnamoyl group, chalcone group, and coumarin group;

R₃ and R₄ each independently represents a hydrogen atom, an alkyl group having 1 to 8 carbon atoms, a phenyl group, or a halogen atom; and

n represents an integer of 2 to 4.

3. (Currently Amended): A photo-alignment layer comprising a polymer of a polymerizable monomer having at least one photo-alignment moiety, which ~~carries out~~ causes a photo-alignment ~~function by the~~ a photo dimerization reaction, and having at least two polymerizable maleimide groups ~~per molecule in a polymerizable monomer~~, the photo-alignment layer having the photo-alignment ~~function carried out~~ caused by photo dimerization of the photo-alignment moiety and a crosslinked structure formed by polymerization of the polymerizable maleimide group.

4. (Currently Amended): The photo-alignment layer according to claim 3, wherein the photoalignment layer is produced by a polymerizable monomer having a at least two polymerizable maleimide group groups is compound represented by the general formula:



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wherein:

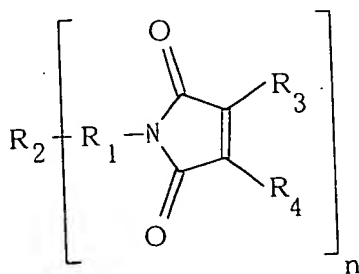
R₁ represents:

an alkylene group having 1 to 30 carbon atoms, a cycloalkylene group having 3 to 12 carbon atoms, or a group 2 to 5 molecular groups in which these 2 to 5 groups selected from the group of alkylene groups having 1 to 30 carbon atoms and cycloalkylene groups having 3 to 12 carbon atoms, the 2 to 5 molecular groups joined ~~are combined~~ via a single bond, an ester bond, an ether bond or a urethane bond; R₂ represents a photo-alignment moiety selected from the group consisting of benzophenone group, cinnamoyl group, chalcone group and coumarin group; and
R₃ and R₄ each independently represents a hydrogen atom, an alkyl group having 1 to 8 carbon atoms, a phenyl group, or a halogen atom; and
n represents an integer of 2 to 4.

5. (Currently Amended): A method of manufacturing a photo-alignment layer, which comprises:
coating a polymerizable monomer having at least one photo-alignment moiety, which ~~carries out a~~ causes photo-alignment ~~function by the~~ a photo dimerization reaction, and at least two polymerizable maleimide groups ~~per molecule in a polymerizable monomer~~ on a substrate, and irradiating the coating layer ~~to~~ with light to cause ~~the~~ a photo dimerization reaction of the ~~structural-unit~~ photo-alignment moiety causing a photo-alignment by photo dimerization and the photopolymerization reaction of the polymerizable maleimide group, ~~thereby to form~~ forming a crosslinked polymeric layer and ~~to enable~~ enabling the polymeric layer to ~~carry out the~~ cause photo-alignment function.

6. (Currently Amended): A method of manufacturing a photo-alignment layer, which comprises:
coating a polymerizable monomer having at least one photo-alignment moiety, which ~~carries out~~
~~causes~~ a photo-alignment function by ~~the~~ a photo dimerization reaction, and at least two
polymerizable maleimide groups ~~per molecule~~ in a polymerizable monomer on a substrate, heating
the coating layer to cause ~~the~~ a thermal polymerization reaction, thereby ~~to form~~ forming a
crosslinked polymeric layer, and exposing the polymeric layer to light to cause ~~the~~ a photo
dimerization reaction of the ~~structural unit, thereby to enable~~ photo-alignment moiety causing photo-
alignment by photo dimerization, the polymeric layer ~~to carry out the~~ causing photo-alignment
function.

7. (Currently Amended): The method of manufacturing a photo-alignment layer according
to claim 5, wherein the maleimide compound is a compound represented by the general formula:



wherein:

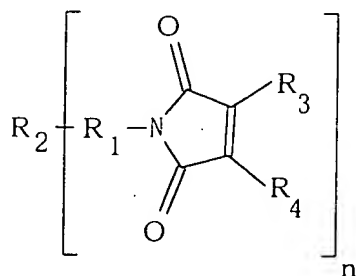
R₁ represents:

an alkylene group having 1 to 30 carbon atoms, a cycloalkylene group having 3 to 12 carbon atoms,
or ~~a group~~ 2 to 5 molecular groups in which these 2 to 5 groups selected from the group of alkylene
groups having 1 to 30 carbon atoms and cycloalkylene groups having 3 to 12 carbon atoms, the 2 to

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5 molecular groups joined ~~are combined~~ via a single bond, an ester bond, an ether bond or a urethane bond; R₂ represents a photo-alignment moiety selected from the group consisting of a benzophenone group, cinnamoyl group, chalcone group, and coumarin group; ~~and~~
R₃ and R₄ each independently represents a hydrogen atom, an alkyl group having 1 to 8 carbon atoms, a phenyl group, or a halogen atom; and
n represents an integer of 2 to 4.

8. (Currently Amended): The method of manufacturing a photo-alignment layer according to claim 6, wherein the maleimide compound is a compound represented by the general formula:



wherein:

R₁ represents:

an alkylene group having 1 to 30 carbon atoms, a cycloalkylene group having 3 to 12 carbon atoms, or a group 2 to 5 molecular groups in which these 2 to 5 groups selected from the group of alkylene groups having 1 to 30 carbon atoms and cycloalkylene groups having 3 to 12 carbon atoms, the 2 to 5 molecular groups joined ~~are combined~~ via a single bond, an ester bond, an ether bond or a urethane

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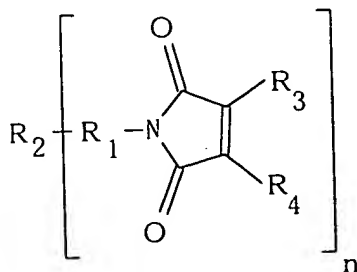
bond; R_2 represents a photo-alignment moiety selected from the group consisting of a benzophenone group, cinnamoyl group, chalcone group, and coumarin group; and

R_3 and R_4 each independently represents a hydrogen atom, an alkyl group having 1 to 8 carbon atoms, a phenyl group, or a halogen atom; and

n represents an integer of 2 to 4.

9. (Currently Amended): A liquid crystal display device having a structure comprising two substrates each having an alignment layer on its interior surface and liquid crystals interposed between the two substrates, wherein the alignment layer is a photo-alignment layer which comprises a polymer made of a polymerizable monomer having at least one photo-alignment moiety, which carries out a photo-alignment ~~function~~ by the a photo dimerization reaction, and at least two polymerizable maleimide groups per molecule, and also has the photo-alignment function ~~carried out~~ caused by photo dimerization of the photo-alignment moiety and a crosslinked structure formed by polymerization of the polymerizable maleimide group.

10. (Currently Amended): The liquid crystal display device according to claim 9, wherein the maleimide compound is a compound represented by the general formula:



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wherein:

R₁ represents:

an alkylene group having 1 to 30 carbon atoms,

a cycloalkylene group having 3 to 12 carbon atoms, or ~~a group 2 to 5 molecular groups in which these 2 to 5 groups are combined~~ selected from the group of alkylene groups having 1 to 30 carbon atoms and cycloalkylene groups having 3 to 12 carbon atoms, the 2 to 5 molecular group joined via a single bond, an ester bond, an ether bond, or a urethane bond;

R₂ represents a photo-alignment moiety selected from the group consisting of benzophenone group, cinnamoyl group, chalcone group and coumarin group; ~~and~~

R₃ and R₄ each independently represents a hydrogen atom, an alkyl group having 1 to 8 carbon atoms, a phenyl group, or a halogen atom; and

n represents an integer of 2 to 4.